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Do Cell Phones Cause Brain Cancer? The Conspiracy Theorists Say Yes

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Several days ago I wrote a column pointing out the distorted arguments of those who fervently believe that cell phones are causing brain cancer.

(Image credit: AFP/Getty Images via @daylife)

The outpouring of abuse from anonymous writers is truly remarkable and is of much greater interest from the standpoint of sociology and psychology than from that of science.

How interesting that the most advanced technological devices have sparked a debate in which one side resorts to the most archaic and primitive means of defending its position!

In the article I noted the tendency of fanatical believers to attack those who question a link between cell phones and brain cancer. The responses were entirely predictable.

Anyone who questions the evidence regarding biological effects of radiofrequency energy below the level at which heating occurs must, in their view, be part of vast conspiracy to suppress the truth and therefore should be vilified and ridiculed. The goal is to intimidate, browbeat, and impugn the integrity of those who dare to speak up and dare to refer to relevant facts or try to make a reasoned case. But an equally important goal is maintain the cohesion of the believers.

One respondent wrote that my use of the word “diehard” betrayed violent emotions on my part. (His associations must be tending toward John McClane). But “diehard” merely means “completely resistant to change” or “fanatically devoted to a cause.” The responses provide ample confirmation of the appropriateness of the word choice. And the attribution of violence to me smacks of projection, since the responses are full of anger.

The diehard believers subscribe to an alternate reality – one in which any blip will be taken as confirmation of what they want to believe. In their way of thinking, studies that report no effect must be bad studies, whereas those that report striking positive findings -- even if they are highly questionable on methodological grounds – must reflect the truth. Unfortunately, that’s not the way to arrive at sound conclusions or knowledge. The scientific approach is to be equally critical of every study -- no matter what its results -- and then try to determine what the totality of the best evidence has to say.

Everyone acknowledges the difficulties of studying the health effects of cell phone use and the limitations of all studies carried out to date. What the believers want to do – is to discredit certain studies and favor other studies based solely on their findings. This is what I criticized Leszczynski for in the first place.

Let me give just one small example. The believers point to findings from the INTERPHONE study that appear to indicate a possible effect of exposure at the highest level of cumulative cell phone use (in hours) on glioma. (Nothing was seen for the other major tumor type – meningioma). Those with the highest cumulative hours of cell phone usage had a 40% increased risk of glioma (see Table 2, below, bottom right corner: OR = 1.40, 95% confidence interval 1.03-1.89). However, if one looks at the whole range of exposures, one sees that most values are below 1.0, thus indicating no risk. At the SECOND highest level of cumulative hours of cell phone use, the risk estimate is statistically significantly BELOW 1.0 (i.e., 0.71, 95% confidence interval 0.53-0.96), implying an apparent protective effect. My point is simply that if one cites the elevated value, one is obliged to cite the preceding value that shows a reduction.

In other words, you have to be consistent and look at all the findings – not just the ones that interest you and support your position.

Table 2 ORs between mobile phone use and brain tumours (meningioma and glioma separately) by regular use, time since start of use, cumulative call time and cumulative number of calls—excludes use with hands-free devices

	Meningioma			Glioma		
	Cases	Controls	OR[a] (95% CI)	Cases	Controls	OR[a] (95% CI)
Regular use in the past ⩾1 year						
No	1147	1174	1.00	1042	1078	1.00
Yes	1262	1488	0.79 (0.68–0.91)	1666	1894	0.81 (0.70–0.94)
Time since start of use (years)						
Never regular user	1147	1174	1.00	1042	1078	1.00
1–1.9	178	214	0.90 (0.68–1.18)	156	247	0.62 (0.46–0.81)
2–4	557	675	0.77 (0.65–0.92)	644	725	0.84 (0.70–1.00)
5–9	417	487	0.76 (0.63–0.93)	614	690	0.81 (0.60–0.97)
⩾10	110	112	0.83 (0.61–1.14)	252	232	0.98 (0.76–1.26)
Cumulative call time with no hands-free devices (h)[b]						
Never regular user	1147	1174	1.00	1042	1078	1.00
<5 h	160	197	0.90 (0.69–1.18)	141	197	0.70 (0.52–0.94)
5–12.9	142	159	0.82 (0.61–1.10)	145	198	0.71 (0.53–0.94)
13–30.9	144	194	0.69 (0.52–0.91)	189	179	1.05 (0.79–1.38)
31–60.9	122	145	0.69 (0.51–0.94)	144	196	0.74 (0.55–0.98)
61–114.9	129	162	0.75 (0.55–1.00)	171	193	0.81 (0.61–1.08)
115–199.9	96	155	0.69 (0.50–0.96)	160	194	0.73 (0.54–0.98)
200–359.9	108	133	0.71 (0.51–0.98)	158	194	0.76 (0.57–1.01)
360–734.9	123	133	0.90 (0.66–1.23)	189	205	0.82 (0.62–1.08)
735–1639.9	108	103	0.76 (0.54–1.08)	159	184	0.71 (0.53–0.96)
⩾1640	130	107	1.15 (0.81–1.62)	210	154	1.40 (1.03–1.89)

This applies to the vast universe of findings from epidemiologic studies and even more to findings from experimental studies of microwaves and radiofrequency energy. When a phenomenon is difficult to study – as is the question of RF energy on human health – we are going to get all sorts uninterpretable and erroneous findings. These provide ample grist for those who know in their bones what the truth is.

If you only have one issue, and you believe that an all-powerful alliance of telecommunications giants, national governments, and scientists are engaged in suppressing vitally important evidence on this issue, it is easy to see how you might become desperate and how you might lose perspective.

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